Release Notes

September, 2011

This document describes features and limitations for the T3-45325 switch.

Summary

This release note describes commands added to the T3-45325 PowerBroadband switch. T3-45325 provides improved power management, changes to SNMP MIBs, and new video QoS features for IPTV deployments.

T3 PowerBroadband Switch, model 45325 Firmware 4.1.2-b5

Hardware

T3 PowerBroadband Switch, model 45325

The T3 Switch is a 25-port concentrator installed in a central wiring closet. It connects to single pair telephone grade UTP wire and delivers high speed data along with line power to Wallplate devices installed in a remote room.

MC-802 Wireless WallPlate, model 45010

The Wireless WallPlate has 2 x 10/100Mb Ethernet ports, and an integrated 802.11b/g radio with enterprise class features. It is managed by the T3 PowerBroadband Switch.

M2 Wired WallPlate, model 45101

The Wired WallPlate has 2 x 10/100Mb Ethernet ports. Each Ethernet port can be managed from the T3 Switch; setting speed, duplex, up/down, along with per port VLANs and QoS.

M4 Wired WallPlate, model 45003

This WallPlate has 4 x 10/100Mb Ethernet ports. It has been discontinued but is supported by this software release. Please see “Remote Ethernet Ports” (page 7) to select correct number of Ethernet ports for M4.

New Features in T3-45325

Bug Fixes included in 4.1.2-b5

This is a list of Bugs that are fixed in 4.1.2-b5

Bug 1692
Fix error in bridge address table where the WLAN was not displayed correctly for wireless client.
Customer Impact: Medium

Bugs 1694 and 1678
Fix ASSERT that caused the T3 switch to reboot when a lot of management traffic was present.
Customer Impact: Medium

Bug 1695
Fix problem with SNMPGET on Wireless Client statistics.
Customer Impact: Low

Bug 1698
Fix problem where radio channels 12-14 do not display in CLI and WebUI
Customer Impact: Low

Bug 1699
Fix problem where admin user gets kicked back to login screen in the WebUI when other management traffic is present
Customer Impact: Medium

Fix GigE PHY stuck in error state upon reset
Customer Impact: Medium

Software Enhancements

Independent VLAN Learning support

Firmware 4.1.2-B5 supports Shared VLAN Learning (SVL) or Independent VLAN Learning (IVL).

SVL Support
The T3 switch forwards packets based on the learned port of the destination MAC address according to the normal 802.1d bridging rules.

The SNMP BRIDGE-MIB (dot1dFdbTable) will report MAC addresses and does not index the VLAN ID. The SNMP Q-BRIDGE-MIB (dot1qFdbEntry) will report the MAC address indexed by VLAN ID

IVL Support
The T3 switch will make forwarding decisions based on the destination MAC address and VLAN ID. Thus, a single MAC can be on multiple VLANs.

The SNMP BRIDGE-MIB (dot1dFdbTable) will only report MAC addresses on VLAN 0. This is a limitation of the bridge MIB, not the T3 switch. The SNMP Q-BRIDGE-MIB (dot1qFdbEntry) will

report the MAC address indexed by VLAN ID. Thus, if using IVL mode, SNMP queries need to index the VLAN ID and use the Q-BRIDGE-MIB.

Dynamic Video QoS

Commands

T3> network stream address add <byte-string(mac)>
Manually add the MAC address of video STB that will receive the video packets.

T3> network stream address delete <byte-string(mac)>
Delete a STB MAC address

T3> network stream mode <auto|multicast(mode)>
Auto mode will detect whether a video stream is multicast or unicast frames. Rate shaping buffers are adjusted according to the number of streams.

T3> network stream statistics reset
Reset video stream statistics counters to 0

T3> show network stream address
Display list of MAC addresses that will receive the video packets with rate shaping

T3> show network stream data-rate
Display detailed data rates for each video stream. Indexed by MAC address, the parameters include Current and 5-minute averages of: kbps, frames/s, burst kbps, discard frames/s

T3> show network stream mode
Display the configured stream mode as Auto or Multicast

T3> show network stream statistics
Indexed by MAC address. Display Rx bytes,Rx frames, and discards

Logging of Wireless Client failures

All failed wireless associations and authentications will be logged to syslog.

Compatibility with older T3 Systems and Firmware

T3-45325 is 100% hardware compatible with all previously released M-series Wallplates (model 45001, 45101, 45002, 45004) and MC-series Wallplates (model 45010). A T3 model 45325 can replace any T2 or T3 Switch without changing the CPEs. See Limitations section.

Known Limitations

Software Versions

T3-45325 will not run 3.2.x switch software. Similarly, you cannot load 4.x software images on the older T3 model 45225 switch.

MC-802 Wallplates are compatible with T3-45325, but they must be running 3.2.0-b12 or later software images. MC-802s running 3.0.x software will encounter problems when connected to the T3-45325, including:

- Remote Ethernet interfaces will not link
- CPE timeout messages will be seen on the T3 console
- Smart RF (adaptive power and auto-channel selection) will not function correctly

SNMP

The CPE hardware will not report the remote forwarding table for remote wired connections. This limitation is hard-coded in the Ethernet switch chip and has not changed since the product first release. To determine the actual remote Ethernet port of a wired client, use a unique VLAN ID for that port.

When operating the T3 Switch in IVL VLAN mode, the standard BRIDGE-MIB will only report MAC addresses that are on VLAN 0. This is a limitation of the BRIDGE-MIB definition which does not support VLAN IDs. IVL mode allows the T3 Switch to record the VLAN ID and MAC address in independent entries in the forwarding table. When using IVL, use the Q-BRIDGE-MIB to view the Interface ID of a client MAC address indexed by its VLAN ID.

Interface ID Functional Change

The Interface ID will now return the actual WLAN where a wireless client is connected. In previous firmware, the Interface ID always returned the DSL port where any wired or wireless client is connected.

This change will affect the several management areas of the T3 firmware:

- dot1dFdbEntry
  - When using the T3 in SVL (shared vlan learning) mode, this table will report wireless clients in the notation “wlanX-Y” and wired clients using the T3 switch port.
  - When using the T3 in IVL (independent vlan learning) mode, this table will report only devices on WLAN 0. Typically this will be the MAC address of the MC-802 Wallplate AP. The dot1d table does not support VLAN IDs. This is a limitation of the dot1d spec, not a limitation of the T3 system.
- dot1qFdbEntry
  - When using the T3 in SVL or IVL mode, this table will report wireless clients in the notation “wlanX-Y” and wired clients using the T3 switch port. Note that the dot1q table is indexed by VLAN ID
- Web UI: Monitor – Bridge will now display the WLAN in the notation “wlanX-Y”
- CLI: output of “show bridge address-table” will now display the WLAN in the notation “wlanX-Y”

The change described below may affect SNMP queries and require changes to the management software to properly parse the data.

This change is being done to allow the service provider to determine the WLAN and Access Point association given a particular wireless client MAC address and VLAN ID.

The products affected by this change include the T3 PowerBroadband Switch (model T3-45225 and T3-45325) and MC-802 Wireless Wallplate (model 45101).

Changes to the BRIDGE-MIB AND Q-BRIDGE-MIB

The following examples illustrate the Interface ID changes in the SNMP dot1q tables. If using SVL mode, the standard BRIDGE-MIB will behave the same as the Q-BRIDGE-MIB.

Interface ID Examples

Example One

Wireless Client MAC address: 00:40:96:B6:F0:10

WebUI display showing WLAN1-1

Address Table

VLAN	Mac Address	Interface Name	Status
0	00:C0:23:4B:03:DB	port1	learned
0	00:C0:23:4F:C8:9C	port2	learned
1	00:14:D1:1A:59:91	port1	learned
1	00:C0:23:4B:03:DB	port1	learned
1	00:C0:23:4F:C8:9C	port2	learned
5	00:14:D1:1A:59:91	eth1	learned
5	00:14:D1:1A:59:A6	eth1	learned
5	00:50:BA:48:65:C6	eth1	learned
10	00:14:D1:1A:59:91	eth2	learned
10	00:14:D1:1A:59:A6	eth2	learned
10	00:40:96:B6:F0:10	wlan1-1	learned
10	00:50:BA:48:65:C6	eth2	learned

Q-BRIDGE MIB

Dot1qTpFdbEntry (T3-T3+)

10 sec

FdbId	TpFdbAddress	TpFdbPort	TpFdbStatus
0	00 C0 23 4B 03 DB	3	learned
0	00 C0 23 4F C8 9C	4	learned
1	00 14 D1 1A 59 91	3	learned
1	00 C0 23 4B 03 DB	3	learned
1	00 C0 23 4F C8 9C	4	learned
5	00 14 D1 1A 59 91	1	learned
5	00 14 D1 1A 59 A6	1	learned
5	00 50 BA 48 65 C6	1	learned
10	00 14 D1 1A 59 91	2	learned
10	00 14 D1 1A 59 A6	2	learned
10	00 40 96 B6 F0 10	11010	learned

Example Two

Wireless Client MAC address: 00:40:96:B6:F0:10

WebUI display showing WLAN20-1

```
T3-T3+> show bridge address-table
VLAN Mac Address         Interface Status
-------------------------------------
0    00:C0:23:4B:03:DB   port1     learned
0    00:C0:23:4F:C8:9C   port20    learned
1    00:14:D1:1A:59:91   port1     learned
1    00:40:96:B6:F0:10   wlan20-1  learned
1    00:C0:23:4B:03:DB   port1     learned
1    00:C0:23:4F:C8:9C   port20    learned
5    00:14:D1:1A:59:91   port1     learned
5    00:14:D1:1A:59:A6   eth1      learned
5    00:40:96:B6:F0:10   eth1      learned
5    00:50:BA:48:65:C6   eth1      learned
10   00:14:D1:1A:59:91   port1     learned
10   00:14:D1:1A:59:A6   eth2      learned
10   00:40:96:B6:F0:10   eth2      learned
10   00:50:BA:48:65:C6   eth2      learned
```

Q-BRIDGE MIB

Dot1qTpFdbEntry (T3-T3+)

10 sec

FdbId	TpFdbAddress	TpFdbPort	TpFdbStatus
0	00 C0 23 4B 03 DB	3	learned
0	00 C0 23 4F C8 9C	22	learned
1	00 14 D1 1A 59 91	3	learned
1	00 40 96 B6 F0 10	201010	learned
1	00 C0 23 4B 03 DB	3	learned
1	00 C0 23 4F C8 9C	22	learned
5	00 14 D1 1A 59 91	3	learned
5	00 14 D1 1A 59 A6	1	learned
5	00 40 96 B6 F0 10	1	learned
5	00 50 BA 48 65 C6	1	learned

Port Number Notation

A port number is used to indicate all physical ports on the T3 Switch, Ethernet and DSL. In the BRIDGE-MIB and Q-BRIDGE-MIB, the T3 port number is returned when a wired client is connected to one of the remote CPE ports.

The following chart shows the Incremental Port Number mapping.

Increment Port Number	Physical Port on the T3 Switch
1	Eth 1
2	Eth 2
3	Port 1
4	Port 2
…	…
26	Port 24
27	Port 25

Examples:

7 = DSL port 5
27 = DSL port 25

Interface ID Notation

The Interface ID is encoded with information that can be used to identify the wireless client location. The Interface ID is also used as standard notation in other MIBs, such as the ifTable.

The Interface ID scheme is: CCRWWE

Where,

CC = DSL port on the T3 Switch where the access point is connected
R = Radio. This value will always be "1"
WW = WLAN. The range is from 01 to 16
E = In the BRIDGE-MIB and Q-BRIDGE-MIB, this value will always be "0"

Examples:

C	C	R	W	W	E	
2	**0**	1	**0**	**1**	0	= Port 20, WLAN 1
0	**1**	1	**0**	**2**	0	= Port 1, WLAN 2
2	**5**	1	**1**	**6**	0	= Port 25, WLAN 16

Note: Leading zeros will not be displayed. Thus, Port 1, WLAN2 will show as "11020".

To download software and documentation

Go to Support Central at http://support.symbol.com/support/ or contact the support group at ems.support@motorolasolutions.com

Notes: Please read these notes before upgrading firmware.

Configuration Backup (T3): Please back up your configuration before and after upgrading your T3 switch. You will normally not need this configuration. However, it is a good idea to save and back up your configurations.

If Wallplate software fails to load: If radios are enabled in some cases the new firmware image may fail to load. If the Wallplate will not boot to the new software, disable the radio on MC-802 and load the new firmware again.

Checking DSL Status: After completing firmware upgrade to MC802 CPEs, verify that no DSL lines are disabled. If a DSL line is disabled it can be enabled manually. Use following command:

```
show interface dsl status
interface dsl power enable portX
```

Install new firmware on T3 Switch

1. Download the firmware from the password protected site, store on a local FTP/TFTP server
2. Login to the T3 Switch and enter these commands from the CLI.

   Note: Image upgrade can also be performed from the webUI

   ```
   system image load ftp://username:password@ftpserver/path/ t3-412b5.img
   system image load tftp://tftpserver/path/ t3-412b5.img
   ```

   Username / Password = username / password of ftp account

   Ftpserver / Tftpserver = IP address of FTP / FTP server – DNS names not
3. Confirm Upgrade is Successful by entering these commands from the CLI:

   ```
   show system image
   ```

   Upgrading status should indicate “Successful”
4. Set the boot image to the alternate software (but do not reboot T3 Switch):

   ```
   system image boot alternate
   show system image
   ```

Install new firmware on the Wireless WallPlate

NOTE: The MC-802 Wallplate firmware version may be newer, so the filename may be different than what is referenced below. Please check http://support.symbol.com/support/ for the latest MC-802 firmware and change the image name accordingly.

1. Load the WallPlate firmware onto the file system of the T3, using these commands from the CLI.
2. You should have stored WallPlate firmware on your local TFTP or FTP server. Copy WallPlate firmware from your local TFTP/ FTP server to T3 flash drive.

file copy ftp://username:password@ftpserver/path/mc800-321b18.img to mc800-321b18.img

file copy tftp://tftpserver/path/mc800-321b18.img to mc800-321b18.img

Username / Password = username / password used for ftp account
Ftpserver / Tftpserver = ip address of FT / TFTP server – DNS names not

3. Push the firmware to each WallPlate using these commands from the CLI:

   remote image load port(1-25) mc800-321b18.img

4. Monitor the progress using

   show remote image

   Note that the Progress will proceed by percentage from 1 to 100.
   Loading image to 25 MC802 units can take up to one hour to complete.

5. Set the alternate image as the boot image (but do not reboot the WallPlate)

   remote image boot port(1-25) alternate

Reboot T3 Switch

1. Reboot the switch (T3 Switch and WallPlates have been set to boot from alternate newly loaded image in above steps).

   system reboot

2. After the switch is rebooted, the WallPlates will power up. When the WallPlates are up, verify the correct firmware was booted

   show system image

   show remote image

3. You can also use Web UI (*System - > Image* page) to verify firmware versions.

To obtain assistance and support

Contact Motorola Solutions Support
Email: ems.support@motorolasolutions.com
Phone: 800-653-5350
International: 001.631.738.6213